

REMARKS

Generally

To anticipate a claim, a single reference must teach every element of the claim. *See* Manual of Patent Examining Procedure ("MPEP") § 2131.01. In rejecting claims in the present application, the Office Action (OA) mischaracterizes the technology disclosed in U.S. Patent No. 5,995,959 to Friedman et al. ["FRIEDMAN"] to find claim elements not present in FRIEDMAN.

In FRIEDMAN, an **information domain** is characterized by one or more **schema** which represent aspects of knowledge in the domain. *See* FRIEDMAN C04 L62-65. A schema relates a type of fact from the domain to its attributes, e.g., in the computer network domain, the schema relating an e-mail address to a person can be expressed as:

e-mail(<first name>, <last name>, <e-mail address>).

See FRIEDMAN C04 L65 – C05 L01.

An **information source** is described in FRIEDMAN by one or more **operators**, each of which can relate:

- 1) the queries addressable to the information source and
- 2) the results returned from such a query,

to those information domain schema to which such a query is at least partially responsive. *See* FRIEDMAN C05 L23-30. For example, where the information source is a UNIX operating system command line, the operator *finger* [which as a UNIX command returns <first name>, <last name>, <office>, and <phone number> in response to the argument <e-mail address>] can be expressed as:

finger (<first name>, <last name>, \$<e-mail address>, <office>, <phone number>)
⇒ email (<first name>, <last name>, <e-mail address>) ∧ office (<first name>, <last name>, <office>) ∧ phone (<office>, <phone>).

See FRIEDMAN C05 L62–65. This can be interpreted as “the operator *Finger* returns data responsive to schemas *email*, *office*, and *phone*.”

In FRIEDMAN, a **user’s query** is formatted to relate the requested information to information domain schema that are applicable that are applicable to it. For example, a user query for first names of people in a office can be expressed as:

first-names (<office>, <first name>) \Leftarrow *office* (<first name>, <last name>, <office>).

See FRIEDMAN C07 L05. This can be interpreted as “the user query for *first-names* is satisfied by the schema *office*.”

In FRIEDMAN, a sequence of operators that is responsive to a particular user’s query is called a **plan**. See FRIEDMAN C07 L03-26 and C04 L30-32. FRIEDMAN describes two ways for determining at least one plan, given a query. The first way, **forward chaining**, searches from descriptions of information sources (operators), in the context of domain schema, to a plan satisfying a user query. The second way, **backward chaining**, searches from a user query, through the context of domain schema, to collect operators forming a plan satisfying the query.

While FRIEDMAN uses similar terminology to that used in the present application, e.g., *plan*, *goal*, *partial-order planner*, *domain*, the uses do not correspond to the extent that FRIEDMAN anticipates the claimed invention or renders it obvious in light of some other reference. In general, FRIEDMAN is insufficient as either a 35 U.S.C. § 102 (“§ 102”) reference or as the basis for a § 103 rejection against the claimed invention .

Details as to how the OA mischaracterizes FRIEDMAN can be found below with regard to specific rejections. The undersigned respectfully requests that rejections founded on mischaracterization of a reference be withdrawn.

Regarding the Specification

The application has been review to detect typographical errors, including those of the type indicated in the OA. A substitute specification correcting errors and numbering the paragraphs of the application (to facilitate prosecution) is enclosed with this Reply.

Regarding Rejections to Claim 1 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language "determining a goal for a purchaser, the goal pertaining to a commerce domain"

The OA cites the following sections of FRIEDMAN :

C09 L52-56

This embodiment generally employs a forward chaining methodology to search from a set of operators, which describe available information sources, to a goal, which is a plan "solving" the query terms of these information sources.

C15 L15-26

The following experimental data demonstrates the efficiency of these optimization. The experiments consisted of five problems in the following four domains. The Parent domain has two operators. See, e.g. [25]. The Patho domain consists of the three operators. See e.g., [25]. The Car domain models relational databases containing price information on foreign and domestic cars with five operators that use numerical constraints to encode price and date restrictions. The People domain encodes Internet white page operations with ten operators.

C16 L58-62

A partial plan is a list comprising, in order: actions; unsolved goals ("UG" of the PP); unbound variables ("UV" of the "PP"); ordering constraints for actions; and

variable bindings. A plan without any unsolved goals is a solution of the user information query <the goal>.

The OA asserts that :

- searching from a set of operators describing available information sources to solving user's query {a goal} in terms of said information sources" point[s] to "determining a goal" and
- "car domain ... and People domain" are "domains" relating to trades or commerce).
- The information sources or knowledge bases 28-30 are being searched by cited "partial order planner" to develop or create a "partial order plan" as indicated by recitation of lines 58-62, col. 16, and as discussed above, 28-30 comprise or embody information relating to above discussed goal).

FRIEDMAN does not disclose *determining a goal for a purchaser* as asserted by the OA. Goal, as used in FRIEDMAN, is a plan for searching information sources, not a user's goal that is determined with assistance from the invention, as claimed. **FRIEDMAN requires that the user provide the user's goal without assistance from the invention in determining the goal.** The present application discloses and claims determining a goal for a purchaser as part of the invention.

For this reason, the OA fails to state a *prima facie* case of anticipation with respect to Claim 1.

Regarding the claim language "using a knowledge base to create one or more partial order plans to satisfy the determined goal, the knowledge base having embodied therein information pertaining to the domain of the goal"

The OA cites the following sections of FRIEDMAN :

The OA asserts that :

using a knowledge base to create one or more partial order plans to satisfy the determined goal, the knowledge base having embodied therein information pertaining to the domain of the goal (Fig. 2 {28-30}, col. 8, lines 48-50 and col. 16, lines 17-62, wherein "plan specifying access to 28-30" is employing or using 28-30 which are information sources or knowledge bases -col. 8, 48-50". The information sources or knowledge bases 28-30 are being searched by cited "partial order planner" to develop or create a "partial order plan" as indicated by recitation of lines 58-62, col. 16, and as discussed above, 28-30 comprise or embody information relating to above discussed goal).

The OA cites multiple information sources (Fig. 2 28, 29, 30) from FRIEDMAN, and the following pertinent text:

In this case, the plan specifies access to information source A 28, source B 29, and source C 30. C08 L48-50; and

An alternate embodiment ... starts from the goal, the user information query ... This method described is a ... partial order planner ... For the description of this alternative method ... a user information query is taken to be a conjunction of predicates together with a list of variables and an indication for each whether it is bound or unbound. Execution of the instantiated queries ... is partially ordered by two types of point truth constants, one representing the binding patterns of the variable in a predicate and another representing true predicates ... A partial plan is a list comprising, in order: actions; unsolved goals . . . ; unbound variables ... ; ordering constraints for actions; and variable bindings. A plan without any unsolved goals is a solution of the user information query.

FRIEDMAN employs a full order planner, not a partial order planner (see, e.g., FRIEDMAN's Claim 1 -- generating an ordered sequence of one or more operations). In FRIEDMAN, the information sources are not a knowledge base of rules characteristic of a set of

objects, but simply databases of data about individual objects that accept queries and product results.

Note also that a knowledge base is usually acquired through interviews with a (human) subject matter expert. For example, FRIEDMAN discusses an example of finding the name of the occupants of a room. Assume that there are several ways of obtaining this information (FRIEDMAN's finger and a human resources database). A knowledge base might represent a preference for obtaining the information from the human resources database because a subject matter expert would know that data in that database is much more likely to be accurate and current. FRIEDMAN does not represent such preferences because FRIEDMAN only represents the bare minimum about the information sources -- the operators that can be used to retrieve information from each information source.

For this reason, the OA fails to state a *prima facie* case of anticipation with respect to Claim 1.

Regarding Rejections to Claim 2 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language "wherein the plan incorporates a list of items necessary to carry out the determined goal."

The OA asserts that :

Table A, col. 9, lines 32-50, wherein said table shows steps or items needed or necessary to perform or carry out for arrive at or determine above discussed goal.

In citing the pseudocode of PROCEDURE OCCAM (Table A and its accompanying description at C09L32-50) from FRIEDMAN, the OA continues to confuse determining a **goal** with developing a **plan** to meet the goal. FRIEDMAN's goal is its plan. C09 L52-56 states <emphasis added>:

This embodiment generally employs a forward -chaining methodology to search from a set of operators, which

describe available information sources, to a goal, which is a plan 'solving' the query in terms of these information sources.

For this reason, and the reasons cited with respect to Claim 1, the OA fails to state a *prima facie* case of anticipation with respect to Claim 2.

Regarding Rejections to Claim 3 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language "wherein the act of creating a plan to satisfy the determined goal is performed using a partial order planner. ."

In citing: Col. 16, line 23 read with lines 17 -22 as the basis for FRIEDMAN anticipating this claim, the OA continues to confuse *determining a goal* with *developing a plan to meet the goal* - here the words "goal" and "plan" are used as in the application. FRIEDMAN does not *determine a goal*, FRIEDMAN develops a plan to meet a goal explicitly given to it by the user.

For this reason, and the reasons cited with respect to Claim 1, the OA fails to state a *prima facie* case of anticipation with respect to Claim 3.

Regarding Rejections to Claim 4 Under § 103 as Rendered Obvious by FRIEDMAN in view of SHASHA

Regarding the claim language "wherein the act of creating a plan to satisfy the determined goal is performed using a non-monotonic truth maintenance system.. ."

The OA asserts that :

Friedman et al teach: creating a plan to satisfy the determined goal (Col. 2, lines 52-57), Friedman et al do not teach: a non-monotonic truth maintenance system. However, Shasha teaches the same (Col. 3, lines 38-42). Friedman et al and Shasha both employ AI procedures to solve problems relating to various commercial areas or domain. While Friedman et al teach creating plan for

solving a user's query or problem concerning trade, such as car buying, Shasha teaches non-monotonic truth maintenance system. It would have been obvious to one of ordinary skill in the relevant art at the time of applicant's invention to incorporate Shasha's feature into Friedman et al's invention, thereby providing a system for an improved representation of networks of facts, belief and expectations so that a user would acquire qualified statements of knowledge from the system as desired. .

The OA cites SHASHA C03 L38-42 <parentheticals added for clarity>..

However, in a nonmonotonic truth maintenance system this conclusion <'Tweety can fly' based on knowing that 'Tweety is a bird'> will be discarded if the system acquires the fact that 'Tweety is a penguin'. Thus, 'Non-monotonic' systems allow the drawing of believed conclusions that may later be retracted.

SHASHA does not teach the use of truth maintenance systems in combination with *determining a goal for a purchaser*, as claimed in the present application. SHASHA merely provides an example and some background on non-monotonic truth maintenance systems. There is no suggestion in SHASHA or FRIEDMAN to **use** a non-monotonic truth maintenance system to create a *plan to satisfy the determined goal* as claimed in the present application. In addition, the limitations of this claim clearly show a distinction between the *plan* and the *determined goal*. This is counter to FRIEDMAN where the plan is the goal.

For this reason, and the reasons cited with respect to Claim 1, the OA fails to state a *prima facie* case of obviousness with respect to Claim 4.

Regarding Rejections to Claim 5 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language "wherein the knowledge base includes one or more plan and goal graphs."

The OA asserts:

Fig. 2 {21-25}, col. 7, line 23 through col. 8, line 54, wherein "determining or representing plan 25-lines 45-46"

points to the presence of "a plan" and its "representation in terms of relational schema-lines 39-43" inferring reference's capability for providing diagrammatic or graphic presentation" and as indicated by bi-directional arrows (Fig. 2 {26 and 28-30}), said information is comprised in information sources or knowledge bases 28-30).

First, the difference between *plan* as used in the application and "plan" as used in FRIEDMAN has been addressed with regard to Claim 1. Second, the OA cites Figure 2 of FRIEDMAN and the text corresponding to it to find a *knowledge base* including a *plan goal graph*. Specifically, the OA mistakenly refers to numerals 28, 29, and 30 as knowledge bases corresponding to the knowledge base as claimed. Third, the OA infers FRIEDMAN's capability for providing diagrammatic or graphic presentation from the directional arrows of Figure 2 and the text:

By reference to information domain model 23 which is appropriate to the domain of the query, this entered query is converted into the previously described query **representation in terms of the relational schema** of the domain model.

From there, the OA implicitly relates this incorrect inference to the invention's use of plan-goal graphs.

With regard to the second assertion concerning this claim, the claimed knowledge base is used to create a partial order plan. The referenced numerals 28, 29, and 30 from FRIEDMAN are not used to create a plan of any sort in either the current invention or the technology disclosed by FRIEDMAN. The reference numerals 28, 29, and 30 are the **target** of FRIEDMAN's plan. With regard to the third assertion concerning this claim, FRIEDMAN Figure 2 is not a *plan-goal graph* as claimed. Further, FRIEDMAN clearly identifies **relational schema** as **text**, not a graph, including:

a head, which names the schema, and one or more attributes, or arguments to the schema, which indicate the types of fact as related by the schema. ... For example, a domain

model can represent information about a person's email address with the relational schema email(F,L,E) where F, L, and E represent the attributes or arguments firstname, lastname and email address respectively.

For this reason, and the reasons cited with respect to Claim 1, the OA fails to state a *prima facie* case of anticipation with respect to Claim 5.

Regarding Rejections to Claim 6 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language "wherein the knowledge base includes one or more concept graphs."

The OA asserts:

Col. 4, line 59 through col. 5, line 9 and Tables A, B, C, cols. 9, 10 and 11, wherein "A relational schema comprising, head, names of the schema, attributes or arguments indicating types of facts-col. 4, line 65 to col. 5, line 1" and Tables A, B, C comprising pseudo {or conceptual} codes-col. 9, line 32, col. 10, line 45, col. 11, line 27, represent "concept graphs"

The OA asserts that the schema used to represent the information domain model in FRIEDMAN is a *concept graph* as claimed in the present application. The OA also asserts that psuedocode of FRIEDMAN Tables A, B, and C are *concept graphs* because "psuedo" can be related to "concept." Both assertions are incorrect.

The OA ignores the explicit definition of *concept graph* provided in the written description of the present application, i.e.:

Concept Graph: a knowledge representation of the dependencies between observable data values and higher-level computations and assertions made about the data. A concept graph can be implemented as a directed acyclic graph of concept nodes that is a particular type of augmented transition network (ATN).

No portion of FRIEDMAN fits this description.

For this reason, and the reasons cited with respect to Claim 1, the OA fails to state a *prima facie* case of anticipation with respect to Claim 6.

Regarding Rejections to Claim 7 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language "a knowledge base including information about one or more domains."

The OA asserts:

Fig. 2 (28-30), col. 8, lines 34-54 and col. 15, lines 21-26, wherein "information sources 28-30" are "knowledge bases" and comprise information relating to various arena or domains, such as "The car domain-col. 15, line 21, and The people domain-col. 15, line 25")

The OA asserts that FRIEDMAN's information sources is equivalent to a *knowledge base* as claimed in the application. The OA ignores the explicit definition of *concept graph* provided in the written description of the application, i.e.:

Knowledge Base: a collection of knowledge (e.g., objects, concepts, relationships, facts, rules, etc.) expressed in a manner such that it can be used by an inference engine. For example, a knowledge base may include rules and facts or assertions as in traditional expert systems.

FRIEDMAN's information sources do not qualify as knowledge bases under this definition, nor under any other definitions known to those skilled in the art. The portions of FRIEDMAN referenced in the OA do not fit this description. FRIEDMAN's information sources are the **target** of a query intended to retrieve an **end product**. FRIEDMAN does not disclose use of data from the information sources to create a plan.

For this reason, among others cited with regard to Claim 7, the OA fails to state a *prima facie* case of anticipation.

Regarding the claim language "an inference engine with access to the knowledge base."

The OA asserts:

Table C, col. 11, line 7 through col. 12, line 44, wherein sub-procedure FindSolutions functioning as "inference engine as indicated by the recitation "This section explains how subprocedure FindSolutions tests each ordered sequence found to determine whether it can be elaborated into one or more solutions to the input query-lines 10-13

The OA asserts that FRIEDMAN's SUB-PROCEDURE FINDSOLUTIONS is equivalent to an *inference engine* as claimed in the application. The OA ignores the explicit definition of inference engine provided in the written description, i.e.:

Inference Engine: a computer program that infers new facts or beliefs using a knowledge base and a set of logical operators.

FRIEDMAN's SUB-PROCEDURE FINDSOLUTIONS is not an expert system and does not use a knowledge base. Interestingly, FRIEDMAN's SUB-PROCEDURE FINDSOLUTIONS has **no interaction whatsoever** with information sources 28, 29, or 30 from Fig. 2 - even though the OA repeatedly asserts that these information sources are *knowledge bases* (and by the definition of the written description, they must interact with the inference engine).

For this reason, among others cited with regard to Claim 7, the OA fails to state a *prima facie* case of anticipation.

Regarding the claim language "wherein the inference engine uses the information in the knowledge base to create a plan for conducting electronic commerce."

The OA asserts:

Above discussed FindSolutions or inference engine employs or uses above discussed information sources or knowledge bases 28-30 and "takes a sequence and generates or creates the set of all plans-col. 11, lines 51-53" and said plans

relate to above discussed trade or commerce arena or domain.

The OA asserts that FRIEDMAN's SUB-PROCEDURE FINDSOLUTIONS is an expert system that employs of uses information sources 28, 29, 30 as knowledge bases. As noted above, FRIEDMAN's SUB-PROCEDURE FINDSOLUTIONS has no interaction whatsoever with information sources 28, 29, or 30 from Fig. 2. **This highlights a systemic reason why FRIEDMAN is not an anticipatory reference under the reasoning of the OA.**

For this reason, among others cited with regard to Claim 7, the OA fails to state a *prima facie* case of anticipation.

Regarding Rejections to Claim 8 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language "wherein the knowledge base includes one or more plan and goal graphs."

The OA asserts:

Fig. 2 {21-25}, col. 7, line 23 through col. 8, line 54, wherein "determining or representing plan 25-lines 45-46" points to the presence of "a plan" and its "representation in terms of relational schema-lines 39-43" inferring reference's capability for providing diagrammatic or graphic presentation" and as indicated by bi-directional arrows (Fig. 2 {26 and 28-30}), said information is comprised in information sources or knowledge bases 28-30).

First, the difference between *plan* as used in the application and "plan" as used in FRIEDMAN has been addressed with regard to Claim 1. Second, the OA cites Figure 2 of FRIEDMAN and the text corresponding to it to find a *knowledge base* including a *plan goal graph*. Specifically, the OA mistakenly refers to numerals 28, 29, and 30 as knowledge bases corresponding to the knowledge base as claimed. Third, the OA infers FRIEDMAN's capability

for providing diagrammatic or graphic presentation from the directional arrows of Figure 2 and the text:

By reference to information domain model 23 which is appropriate to the domain of the query, this entered query is converted into the previously described query **representation in terms of the relational schema** of the domain model.

From there, the OA implicitly relates this incorrect inference to the invention's use of plan-goal graphs.

With regard to the second assertion concerning this claim, the claimed knowledge base is used to create a partial order plan. The referenced numerals 28, 29, and 30 from FRIEDMAN are not used to create a plan of any sort in either the current invention or the technology disclosed by FRIEDMAN. The reference numerals 28, 29, and 30 are the **target** of FRIEDMAN's plan. With regard to the third assertion concerning this claim, FRIEDMAN Figure 2 is not a *plan-goal graph* as claimed. Further, FRIEDMAN clearly identifies **relational schema** as **text**, not a graph, including:

a head, which names the schema, and one or more attributes, or arguments to the schema, which indicate the types of fact as related by the schema. ... For example, a domain model can represent information about a person's email address with the relational schema email(F,L,E) where F, L, and E represent the attributes or arguments firstname, lastname and email address respectively.

For this reason, and the reasons cited with respect to Claim 7, the OA fails to state a *prima facie* case of anticipation.

Regarding Rejections to Claim 9 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language "wherein the knowledge base includes one or more concept graphs."

The OA asserts:

Col. 4, line 59 through col. 5, line 9 and Tables A, B, C, cols. 9, 10 and 11, wherein "A relational schema comprising, head, names of the schema, attributes or arguments indicating types of facts-col. 4, line 65 to col. 5, line 1" and Tables A, B, C comprising pseudo {or conceptual} codes-col. 9, line 32, col. 10, line 45, col. 11, line 27, represent "concept graphs

The OA asserts that the schema used to represent the information domain model in FRIEDMAN is a *concept graph* as claimed in the present application. The OA also asserts that psuedocode of FRIEDMAN Tables A, B, and C are *concept graphs* because "psuedo" can be related to "concept." Both assertions are incorrect.

The OA ignores the explicit definition of *concept graph* provided in the written description of the present application, i.e.:

Concept Graph: a knowledge representation of the dependencies between observable data values and higher-level computations and assertions made about the data. A concept graph can be implemented as a directed acyclic graph of concept nodes that is a particular type of augmented transition network (ATN).

No portion of FRIEDMAN fits this description.

For this reason, and the reasons cited with respect to Claim 7, the OA fails to state a *prima facie* case of anticipation.

Regarding Rejections to Claim 10 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language "wherein the inference engine includes a partial order planner and wherein the inference engine uses the partial order planner to create one or more plan instances."

The OA asserts:

As discussed above, FindSolutions being a subprocedure of the reference procedure "occam-col. 9, lines 32-50", functions as "inference procedure or engine" would include "partial order planner-col. 16, line 23", and would employ

or use it to generate or create above discussed all plans
or one or more instances thereof.

The OA asserts that FRIEDMAN's FINDSOLUTION (of FRIEDMAN's preferred embodiment) is an *inference engine* that **includes** the so-called partial order planner of FRIEDMAN's **alternative embodiment**.

FRIEDMAN's FINDSOLUTION is not an *inference engine* (see Remarks directed to Claim 7 rejections). Further, FRIEDMAN does not disclose the use of an inference engine using a partial order planner. There is no suggestion to combine features of two different embodiments. Further, it is not apparent that such a combination would work - the first embodiment is forward chaining, the second is backward chaining. It is not apparent from the disclosure where a partial order planner would fit in to the first embodiment.

For this reason, and the reasons cited with respect to Claim 9, the OA fails to state a *prima facie* case of anticipation.

Regarding Rejections to Claim 11 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language "wherein the inference engine manages life cycle states of the one or more plan instances according to a commitment level of the partial order planner."

The OA asserts:

(Col. 2, lines 38-41 and col. 16, lines 22-25. Above discussed FindSolutions (or inference engine) would control or manage "information state or life cycle states as indicated by "information collected at a particular stage in potential execution of a potential query plan-lines 39-41, wherein "particular stage in potential execution of a potential query plan" inferring "life cycle" of the plan and recitation of "sound, complete, free of threats" indicating claimed "commitment level" of cited partial order planner. Moreover, "commitment strategies are known since 1991 (col. 18, {19} lines 40-42), inclusion of which would be considered inherent at the time of applicant's invention).

The OA asserts that FRIEDMAN's FINDSOLUTION is an *inference engine* and that FRIEDMAN's "information state" is the *life cycle state* of a *plan instance*. The OA asserts that "sound, free, and free of threats" is *commitment level* as claimed in the present application. The OA also asserts that the title alone of a 1991 paper on commitment strategies indicates that *commitment levels* are inherent in FRIEDMAN.

First, FRIEDMAN's FINDSOLUTION is not an *inference engine* (see Remarks directed to Claim 7 rejections). Second, in Figure 6 and beginning on page 21 of the written description, the application clearly identifies attributes of the *life cycle state* of a *plan*. None of these attributes are found in FRIEDMAN - making it clear that FRIEDMAN's "information state" is unrelated to the *life cycle state* of a *plan*. These same sections of the application make it clear that "sound, free, and clear" are not *commitment levels*. Further, the OA again attempts to combine features of different embodiments ("sound, free, and clear" is from the alternative embodiment in

FRIEDMAN) without any indication that an operable system results. Finally, it is not apparent that the referenced 1991 paper discloses anything germane to the claimed invention.

For this reason, and the reasons cited with respect to Claim 10, the OA fails to state a *prima facie* case of anticipation.

Regarding Rejections to Claim 12 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language “wherein the inference engine manages monitoring of the situation using the one or more concept graphs according to the life cycle states of the one or more plan instances.”

The OA asserts:

Col. 12, lines 37-39, wherein "checking" infers "monitoring" and it would allow user to check or monitor claimed a thing or "situation" employing above discussed concept graph based upon the above discussed states or life cycles of cited plans or instances thereof).

The OA asserts that where FRIEDMAN discloses checking to see whether a candidate plan is redundant with a plan already in the Solution Set, FRIEDMAN is *monitoring the situation using a concept graph according to life cycle states of a plan instance*. Checking the characteristics of a plan against those of other plans does not equate to monitoring the situation.

For this reason, and the reasons cited with respect to Claim 11, the OA fails to state a *prima facie* case of anticipation with respect to Claim 12.

Regarding Rejections to Claim 13 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language “the inference engine determines what further processing is needed by the partial order planner based on the monitoring of the situation.”

For the reasons cited with respect to Claim 12, the OA fails to state a *prima facie* case of anticipation with respect to Claim 13.

Regarding Rejections to Claim 14 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language “the knowledge base includes one or more scripts, each of the one or more scripts comprising a sequence of partially-specified primitive actions”

The OA asserts:

Col. 15, Table 1, wherein entries of the table point to availability of "texts or scripts" including claimed series or sequence of partially assigned or specified actions that would remain same (primitive actions)).

The OA asserts where FRIEDMAN's unchanged actions correspond to *primitives*. This is simply not the case. For this reason, and the reasons cited with respect to Claim 7, the OA fails to state a *prima facie* case of anticipation with respect to Claim 14.

Regarding Rejections to Claim 15 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language “wherein the inference engine includes a partial order planner.”

The OA asserts:

As discussed above, FindSolutions being a subprocedure of the reference procedure "occam-col. 9, lines 32-50", functions as "inference procedure or engine" would include "partial order planner-col. 16, line 23", and would employ or use it to generate or create above discussed all plans or one or more instances thereof.

The OA asserts that FRIEDMAN's FINDSOLUTION (of FRIEDMAN's preferred embodiment) is an *inference engine* that **includes** the so-called partial order planner of FRIEDMAN's **alternative embodiment**.

FRIEDMAN's FINDSOLUTION is not an *inference engine* (see Remarks directed to Claim 7 rejections). Further, FRIEDMAN does not disclose the use of an inference engine using a partial order planner. There is no suggestion to combine features of two different embodiments. Further, it is not apparent that such a combination would work - the first embodiment is forward

chaining, the second is backward chaining. It is not apparent from the disclosure where a partial order planner would fit in to the first embodiment.

For this reason, and the reasons cited with respect to Claim 9, the OA fails to state a *prima facie* case of anticipation.

Regarding Rejections to Claim 16 Under § 103 as Rendered Obvious by FRIEDMAN in view of SHASHA

Regarding the claim language "wherein the inference engine includes a non-monotonic truth maintenance system..."

The OA asserts that :

Friedman et al teach: creating a plan to satisfy the determined goal (Col. 2, lines 52-57), Friedman et al do not teach: a non-monotonic truth maintenance system. However, Shasha teaches the same (Col. 3, lines 38-42). Friedman et al and Shasha both employ AI procedures to solve problems relating to various commercial areas or domain. While Friedman et al teach creating plan for solving a user's query or problem concerning trade, such as car buying, Shasha teaches non-monotonic truth maintenance system. It would have been obvious to one of ordinary skill in the relevant art at the time of applicant's invention to incorporate Shasha's feature into Friedman et al's invention, thereby providing a system for an improved representation of networks of facts, belief and expectations so that a user would acquire qualified statements of knowledge from the system as desired. .

The OA cites SHASHA C03 L38-42 <parentheticals added for clarity>.:

However, in a nonmonotonic truth maintenance system this conclusion <'Tweety can fly' based on knowing that 'Tweety is a bird'> will be discarded if the system acquires the fact that 'Tweety is a penguin'. Thus, 'Non-monotonic' systems allow the drawing of believed conclusions that may later be retracted.

SHASHA does not teach the use of truth maintenance systems in combination with *determining a goal for a purchaser*, as claimed in the present application. SHASHA merely provides an example and some background on non-monotonic truth maintenance systems. There is no suggestion in SHASHA or FRIEDMAN to **use** a non-monotonic truth maintenance system to create a *plan to satisfy the determined goal*, as claimed in the present application. In addition, the limitations of this claim clearly show a distinction between the *plan* and the *determined goal*. This is counter to FRIEDMAN where the plan is the goal.

For this reason, and the reasons cited with respect to Claim 7, the OA fails to state a *prima facie* case of anticipation with respect to Claim 16.

Regarding Rejections to Claim 17 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language “the buyer agent is a Internet web browser plug-in.”

For the reasons cited with respect to Claim 7, the OA fails to state a *prima facie* case of anticipation with respect to Claim 17.

Regarding Rejections to Claim 18 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language “ the buyer agent further includes a monitoring component, the monitoring component recording the actions of a user within the Internet web browser.”

For the reasons cited with respect to Claim 17, the OA fails to state a *prima facie* case of anticipation with respect to Claim 18.

Regarding Rejections to Claim 19 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language “using an intent interpreter to determine a goal for a purchaser, the goal pertaining to a commerce domain”

The OA asserts:

(Col. 7, lines 50-51, wherein "procedural interpreting" inferring the provision of an "interpreting or intent interpreting" function and about "to determine a goal for a purchaser, the goal pertaining to a commerce domain" see discussion of applicant's claim 1 a) above);

C07 L49-51 states:

There are two ways of interpreting the body of a plan. Preferably, the body is interpreted procedurally, in which case the order of the operator instances is meaningful.

C04 L30-32 defines "plan" as "an ordered sequence of information - access commands." The referenced section of FRIEDMAN clearly refers to interpreting the ordered sequence of information-access commands, not interpreting the intent of an operator, as claimed.

For this reason, and the reasons cited with respect to Claim 17, the OA fails to state a *prima facie* case of anticipation with respect to Claim 18.

Regarding the claim language "using a knowledge base to create one or more partial order plans to satisfy the determined goal, the knowledge base having embodied therein information pertaining to the domain of the goal.."

The OA cites multiple information sources (Fig. 2 28, 29, 30) from FRIEDMAN, and the following pertinent text:

C08 L48-50

In this case, the plan specifies access to information source A 28, source B 29, and source C 30.

C16 L17-62;

An alternate embodiment ... starts from the goal, the user information query ... This method described is a ... partial order planner ... For the description of this alternative method ... a user information query is taken to be a conjunction of predicates together with a list of

variables and an indication for each whether it is bound or unbound. Execution of the instantiated queries ... is partially ordered by two types of point truth constants, one representing the binding patterns of the variable in a predicate and another representing true predicates ... A partial plan is a list comprising, in order: actions; unsolved goals ... ;; unbound variables ... ; ordering constraints for actions; and variable bindings. A plan without any unsolved goals is a solution of the user information query."

The OA asserts that:

Fig. 2 {28-30}, col. 8, lines 48-50 and col. 16, lines 17-62, wherein "plan specifying access to 28 -30" is employing or using 28 -30 which are information sources or knowledge bases -col. 8, 48 -50". The information sources or knowledge bases 28 -30 are being searched by cited "partial order planner" to develop or create a "partial order plan" as indicated by recitation of lines 58 -62, col. 16, and as discussed above, 28 -30 comprise or embody information relating to above discussed goal

Regarding Rejections to Claim 20 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language "wherein the plan incorporates a list of items necessary to carry out the determined goal."

The OA asserts that :

Table A, col. 9, lines 32-50, wherein said table shows steps or items needed or necessary to perform or carry out for arrive at or determine above discussed goal.

In citing the pseudocode of PROCEDURE OCCAM (Table A and its accompanying description at C09L32-50) from FRIEDMAN, the OA continues to confuse determining a **goal** with developing a **plan** to meet the goal. FRIEDMAN's goal is its plan. C09 L52-56 states <emphasis added>:

This embodiment generally employs a forward -chaining methodology to search from a set of operators, which

describe available information sources, to a goal, which is a plan 'solving' the query in terms of these information sources.

For this reason, and the reasons cited with respect to Claim 1, the OA fails to state a *prima facie* case of anticipation with respect to Claim 2.

Regarding Rejections to Claim 21 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language “wherein the act of creating a plan to satisfy the determined goal is performed using a partial order planner. .”

In citing: Col. 16, line 23 read with lines 17 -22 as the basis for FRIEDMAN anticipating this claim, the OA continues to confuse *determining a goal* with *developing a plan to meet the goal* - here the words "goal" and "plan" are used as in the application. FRIEDMAN does not *determine a goal*, FRIEDMAN develops a plan to meet a goal explicitly given to it by the user.

For this reason, and the reasons cited with respect to Claim 1, the OA fails to state a *prima facie* case of anticipation with respect to Claim 3.

Regarding Rejections to Claim 22 Under § 103 as Rendered Obvious by FRIEDMAN in view of SHASHA

Regarding the claim language “wherein the act of creating a plan to satisfy the determined goal is performed using a non-monotonic truth maintenance system ”

The OA asserts that :

Friedman et al teach: creating a plan to satisfy the determined goal (Col. 2, lines 52-57), Friedman et al do not teach: a non-monotonic truth maintenance system. However, Shasha teaches the same (Col. 3, lines 38-42). Friedman et al and Shasha both employ AI procedures to solve problems relating to various commercial areas or domain. While Friedman et al teach creating plan for

solving a user's query or problem concerning trade, such as car buying, Shasha teaches non-monotonic truth maintenance system. It would have been obvious to one of ordinary skill in the relevant art at the time of applicant's invention to incorporate Shasha's feature into Friedman et al's invention, thereby providing a system for an improved representation of networks of facts, belief and expectations so that a user would acquire qualified statements of knowledge from the system as desired. .

The OA cites SHASHA C03 L38-42 <parentheticals added for clarity>.:

However, in a nonmonotonic truth maintenance system this conclusion <'Tweety can fly' based on knowing that 'Tweety is a bird'> will be discarded if the system acquires the fact that 'Tweety is a penguin'. Thus, 'Non-monotonic' systems allow the drawing of believed conclusions that may later be retracted.

SHASHA does not teach the use of truth maintenance systems in combination with *determining a goal for a purchaser*, as claimed in the present application. SHASHA merely provides an example and some background on non-monotonic truth maintenance systems. There is no suggestion in SHASHA or FRIEDMAN to **use** a non-monotonic truth maintenance system to create a *plan to satisfy the determined goal*, as claimed in the present application. In addition, the limitations of this claim clearly show a distinction between the *plan* and the *determined goal*. This is counter to FRIEDMAN where the plan is the goal.

For this reason, and the reasons cited with respect to Claim 7, the OA fails to state a *prima facie* case of anticipation with respect to Claim 16.

Regarding Rejections to Claim 23 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language "wherein the knowledge base includes one or more plan and goal graphs."

The OA asserts:

Fig. 2 {21-25}, col. 7, line 23 through col. 8, line 54, wherein "determining or representing plan 25-lines 45-46"

points to the presence of "a plan" and its "representation in terms of relational schema-lines 39-43" inferring reference's capability for providing diagrammatic or graphic presentation" and as indicated by bi-directional arrows (Fig. 2 {26 and 28-30}), said information is comprised in information sources or knowledge bases 28-30).

First, the difference between *plan* as used in the application and "plan" as used in FRIEDMAN has been addressed with regard to Claim 1. Second, the OA cites Figure 2 of FRIEDMAN and the text corresponding to it to find a *knowledge base* including a *plan goal graph*. Specifically, the OA mistakenly refers to numerals 28, 29, and 30 as knowledge bases corresponding to the knowledge base as claimed. Third, the OA infers FRIEDMAN's capability for providing diagrammatic or graphic presentation from the directional arrows of Figure 2 and the text:

By reference to information domain model 23 which is appropriate to the domain of the query, this entered query is converted into the previously described query **representation in terms of the relational schema** of the domain model.

From there, the OA implicitly relates this incorrect inference to the invention's use of plan-goal graphs.

With regard to the second assertion concerning this claim, the claimed knowledge base is used to create a partial order plan. The referenced numerals 28, 29, and 30 from FRIEDMAN are not used to create a plan of any sort in either the current invention or the technology disclosed by FRIEDMAN. The reference numerals 28, 29, and 30 are the **target** of FRIEDMAN's plan. With regard to the third assertion concerning this claim, FRIEDMAN Figure 2 is not a *plan-goal graph* as claimed. Further, FRIEDMAN clearly identifies **relational schema** as **text**, not a graph, including:

a head, which names the schema, and one or more attributes, or arguments to the schema, which indicate the types of fact as related by the schema. ... For example, a domain

model can represent information about a person's email address with the relational schema email(F,L,E) where F, L, and E represent the attributes or arguments firstname, lastname and email address respectively.

For this reason, and the reasons cited with respect to Claim 19, the OA fails to state a *prima facie* case of anticipation with respect to Claim 23.

Regarding Rejections to Claim 24 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language "wherein the knowledge base includes one or more concept graphs."

The OA asserts:

Col. 4, line 59 through col. 5, line 9 and Tables A, B, C, cols. 9, 10 and 11, wherein "A relational schema comprising, head, names of the schema, attributes or arguments indicating types of facts-col. 4, line 65 to col. 5, line 1" and Tables A, B, C comprising pseudo {or conceptual} codes-col. 9, line 32, col. 10, line 45, col. 11, line 27, represent "concept graphs"

The OA asserts that the schema used to represent the information domain model in FRIEDMAN is a *concept graph* as claimed in the present application. The OA also asserts that pseudocode of FRIEDMAN Tables A, B, and C are *concept graphs* because "psuedo" can be related to "concept." Both assertions are incorrect.

The OA ignores the explicit definition of *concept graph* provided in the written description of the present application, i.e.:

Concept Graph: a knowledge representation of the dependencies between observable data values and higher-level computations and assertions made about the data. A concept graph can be implemented as a directed acyclic graph of concept nodes that is a particular type of augmented transition network (ATN).

No portion of FRIEDMAN fits this description. Neither FRIEDMAN's schema nor pseudocode represent dependencies between observable data values and higher level computations and

assertions made about such data. Neither FRIEDMAN's schema nor pseudocode can be implemented as a directed acyclic graph of concept nodes.

For this reason, and the reasons cited with respect to Claim 19, the OA fails to state a *prima facie* case of anticipation with respect to Claim 24.

Regarding Rejections to Claim 25 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language "a plurality of intelligent agents, each of the plurality of intelligent agents including:."

The OA asserts:

Col. 1, line 34 recited with lines 14-17 and col. 9, line 32 through col. 12, line 39, wherein "agents" are "intelligent agents", since the are automated computerized processes or procedures, by this token reference's procedure "occam" and sub-procedures "InstantiateOp and FindSolutions", col. 11, Table A are intelligent agents)

The OA asserts that the following portions of FRIEDMAN, C01 L33-35 <parentheticals added>

<information> [s]ources are managed by different organizations, hence agents, whether human or automated, must adhere to the remotely defined formats <to query the information sources>,

when read with C01 L14-17

The field of this invention relates to information access over networks, and specifically to the automatic location and retrieval of information available from networked information sources in response to user information queries,

and when read with C09 L32-C12 L39 and PROCEDURE OCCAM, anticipate a plurality of intelligent agents of the type claimed.

First, the initial reference to "agents" identifies the entities that operate information sources **outside** FRIEDMAN's invention. These entities have **no role** in FRIEDMAN's disclosure. The FIELD OF THE INVENTION from FRIEDMAN adds nothing relevant to intelligent agents C01 L33-35. Second, C09 L32-C12 L39 contains no instances of the words "agent" or "intelligent"; it contains reference to pseudocode that comprises ordinary algorithms, not intelligent agents. Occurrence of the word "agent" in one portion of the application, and the stretch to identify an ordinary algorithm (an algorithm: completely unrelated to the other use of "agent"; and without a single reference to intelligent agents) as an agent fails completely as the basis for anticipation of Claim 25.

Regarding the claim language "a knowledge base including information about one or more domains."

The OA asserts:

Fig. 2 (28-30), col. 8, lines 34-54 and col. 15, lines 21-26, wherein "information sources 28-30" are "knowledge bases" and comprise information relating to various arena or domains, such as "The car domain-col. 15, line 21, and The people domain-col. 15, line 25")

The OA asserts that FRIEDMAN's information sources is equivalent to a *knowledge base* as claimed in the application. The OA ignores the explicit definition of *knowledge base* provided in the written description of the application, i.e.:

Knowledge Base: a collection of knowledge (e.g., objects, concepts, relationships, facts, rules, etc.) expressed in a manner such that it can be used by an inference engine. For example, a knowledge base may include rules and facts or assertions as in traditional expert systems.

FRIEDMAN's information sources do not qualify as knowledge bases under this definition, nor under any other definitions known to those skilled in the art – for reasons noted above. The portions of FRIEDMAN referenced in the OA do not fit this description.

For this reason, among others cited with regard to Claim 25, the OA fails to state a *prima facie* case of anticipation.

Regarding the claim language "an inference engine with access to a knowledge base, the inference engine including a partial order planner."

The OA asserts:

As discussed above, FindSolutions being a subprocedure of the reference procedure "occam-col. 9, lines 32-50", functions as "inference procedure or engine" would include "partial order planner-col. 16, line 23", and would employ or use it to generate or create above discussed all plans or one or more instances thereof.

The OA asserts that FRIEDMAN's FINDSOLUTION (of FRIEDMAN's preferred embodiment) is an *inference engine* that **includes** the so-called partial order planner of FRIEDMAN's **alternative embodiment**.

FRIEDMAN's FINDSOLUTION is not an *inference engine* (see Remarks directed to Claim 7 rejections). Further, FRIEDMAN does not disclose the use of an inference engine using a partial order planner. There is no suggestion to combine features of two different embodiments. Further, it is not apparent that such a combination would work - the first embodiment is forward chaining, the second is backward chaining. It is not apparent from the disclosure where a partial order planner would fit in to the first embodiment.

For this reason, and the reasons cited with respect to Claim 25, the OA fails to state a *prima facie* case of anticipation.

Regarding the claim language "a data management system that collects and distributes data."

The OA asserts that FRIEDMAN's use of "... a database of data structures representing the information domain ... These data structures are typically stored for access by the methods of this invention ... " indicates a data management system that collects and distributes data. Fig. 1 {2, 8}, col. 4, lines

47-50. Such data structures in FRIEDMAN are used to reformat a user's query into a form usable by planning methods of the invention to plan a query string that can be addresses to external information sources. C08 L34-54. These data structures do not collect or distribute data. Without collection or distribution of data, the reference does not anticipate the claim.

For this reason, and the reasons cited with respect to Claim 25, the OA fails to state a *prima facie* case of anticipation.

Regarding Rejections to Claim 26 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language "wherein the knowledge base includes one or more concept graphs."

The OA asserts:

Col. 4, line 59 through col. 5, line 9 and Tables A, B, C, cols. 9, 10 and 11, wherein "A relational schema comprising, head, names of the schema, attributes or arguments indicating types of facts-col. 4, line 65 to col. 5, line 1" and Tables A, B, C comprising pseudo {or conceptual} codes-col. 9, line 32, col. 10, line 45, col. 11, line 27, represent "concept graphs

The OA asserts that the schema used to represent the information domain model in FRIEDMAN is a *concept graph* as claimed in the present application. The OA also asserts that psuedocode of FRIEDMAN Tables A, B, and C are *concept graphs* because "psuedo" can be related to "concept." Both assertions are incorrect.

The OA ignores the explicit definition of *concept graph* provided in the written description of the present application, i.e.:

Concept Graph: a knowledge representation of the dependencies between observable data values and higher-level computations and assertions made about the data. A concept graph can be implemented as a directed acyclic graph of concept nodes that is a particular type of augmented transition network (ATN).

No portion of FRIEDMAN fits this description. Friedman's schema and psuedocode both lack representations of dependencies called for in the definition of a *concept graph*. Interestingly, the referenced portions of FRIEDMAN asserted to anticipate the claimed use of concept graphs are also asserted by the OA as anticipating the claimed use of knowledge bases.

For this reason, and the reasons cited with respect to Claim 25, the OA fails to state a *prima facie* case of anticipation with respect to Claim 26.

Regarding Rejections to Claim 27 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language "wherein each agent of the plurality of intelligent agents determines the intentions of one or more users and wherein the data management system of a first agent of the plurality of intelligent agents shares data with a second agent of the plurality of intelligent agents representing the determined intentions of the one or more users to facilitate collaboration."

The OA asserts:

See discussion of applicant's claims 25a), I 9a) above and user would employ cited intelligent agents of 25a) to find or determine intentions using intent interpreter of I 9a) for claimed purposes).

In addition to the remarks addressed to the rejection of Claims 19 and 25, it should be noted that FRIEDMAN's entire disclosure is directed to one (1) and only (1) process without any mention of interaction with other processes of the same type.

For this reason, and the reasons cited with respect to Claim 26, the OA fails to state a *prima facie* case of anticipation with respect to Claim 27.

Regarding Rejections to Claim 28 Under § 102 as Anticipated by FRIEDMAN

Regarding the claim language "wherein the system uses the shared data to automatically detect conflicts between the one or more users."

The OA asserts:

Col. 14, lines 22-30, wherein "executing the same operator twice not returning new tuples-lines 26-29" inferring availability of a function which checks for or detects duplication or conflict).

The OA asserts that checking for duplicated instances of steps in a plan of a single user, as disclosed in FRIEDMAN, anticipates the detection of conflicts among users, as claimed in the application.

The checking for **duplication** in FRIEDMAN is not equivalent to checking for *conflict* among the plans of several users, as claimed in the application. Duplication in FRIEDMAN is not a matter of conflict, but a matter of procedure optimization. See FRIEDMAN C14 L01. For example: "Duplicated operator instance pruning eliminates redundant instances." A "operator instance" (an addition to the query plan) is "rejected" (not appended to the query) "... if the operator instance has the same bound arguments an existing step, since executing the same operator twice will not return any new tuples ." See FRIEDMAN C14 L26-29.

For this reason, and the reasons cited with respect to Claim 26, the OA fails to state a *prima facie* case of anticipation with respect to Claim 27.

CONCLUSION

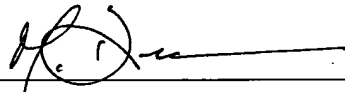
With consideration of the above remarks, the undersigned submits that this application is in condition for allowance, and such disposition is earnestly solicited. If the Examiner believes that the prosecution might be advanced by discussing the application with the undersigned, in person or over the telephone, we would welcome the opportunity to do so.

Respectfully submitted,

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